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ABSTRACT

While numerous approaches to inhibit smoking have appeared in the literature, self-management is one technique that allows the client to take a more active part in the treatment. To study the effectiveness of self-management in a single-subject design, an 18 year old female college student who smoked mostly on weekends was told to self-monitor her smoking behavior. Treatment consisted of choosing a date to stop smoking and telling friends about her goal. She met weekly with a therapist. The 5-day treatment contract included a combination of self-management procedures: self-reinforcement, self-monitoring, use of environmental stimuli, contracting, engaging in alternative behaviors, use of a "smoking-spot", elimination of concomitant activity, and use of positive self-statements. From a baseline high of 96 cigarettes per week, the student reduced the number of cigarettes smoked to 12 during the 5-day intervention, and attained total abstinence during the maintenance phase. Follow-up contact after 17 and 20 months revealed the subject's continued abstinence from smoking. The combined intervention of the "smoking-spot" and contracted date to stop smoking were considered crucial to the success of the program. (JAC)

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# Self-Management Procedures to Stop Smoking[1]

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Abstract

This study sought to reduce smoking through a combination of self-management procedures in a single-subject design with a maintenance phase. Follow-up after 17 and 20 months revealed the goal of reducing the subject's smoking rate to zero was realized. The procedures used were: self-reinforcement, self-monitoring, use of environmental stimuli, contracting, engaging in alternative behaviors, use of a "smoking spot", elimination of concomitant activity, and use of positive self-statements. The value of the various procedures is discussed and future intervention in this direction is encouraged.

## Self-Management Procedures to Stop Smoking

While numerous approaches to inhibit smoking behavior have appeared in the literature on smoking reduction, self-management is one technique that allows the client to take a more active part in the treatment than aversive conditioning or hypnosis. McFall (1970) has shown self-monitoring to be partially effective. The efficacy of self-control techniques has been demonstrated by Axelrod, Hall, Weis, and Rohrer (1974) and Dalahunt and Curran (1976). Since smoking is considered to ba a conditioned response, it is important to concentrate on the environmental stimuli involved. This research employed self-control techniques and placed special attention on the environmental stimuli associated with smoking.

Past research using self-management techniques has included the use of a "smoking chair" removed from all social contact (Nolan, 1968). In this single-subject research, Nolan reported the subject stopped smoking after treatment and a six month follow-up revealed she had still refrained from smoking. Using both aversive conditioning and self-management training, Chapman, Smith, and Layden (1971) reported one-third of their twelve subjects were not smoking one month following treatment. Chapman et al. (1971) used the following techniques: subjects counted on a wrist counter the cigarettes smoked before lighting up; researcher administered an electric shock to subjects for looking at smoking advertisements, for inhaling a cigarette, for approaching an ash tray, and for raising a cigarette to the mouth; subjects smoked only in an "anti-social" chair; and subjects stored cigarettes in an inconvenient location. Nelson (1977) used self-control procedures with 54

subjects and reported that after ten months 20% of the subjects were still not smoking. The procedures used by Nelson were: limiting smoking to a "smoking spot" where the subjects did all their smoking; not engaging in concomitant activity while smoking; placing cigarettes and matches in different locations; snapping a rubber band on the wrist when the urge to smoke was felt; satiation smoking; and poking holes in, wetting, and breaking off the filters of cigarettes. A three-phase method of self-monitoring was used to stop smoking in a single subject by Rozensky (1974). The phases included: 1)asking the subject to stop smoking on her own; 2) having her record the time and place she smoked; and 3) recording all cigarettes before smoking. Follow-up after 35 and 50 weeks revealed she had not smoked since the treatment ended. To test self-control methods with cigarette smokers in the institutional setting, Edinger, Nelson, Davidson, and Wallace (1978) used 14 inmates. Self-control methods included changing criteria, goal setting, positive self-statements, muscle relaxation training, substitution, mini-goals, stimulus narrowing, and self-reward/punishment. Results showed nine of the selected volunteers showed significant reduction in their smoking. Self-management approaches including habit reversal, cognitively oriented self-control methods, and patient education were used by Katz, Heiman, and Gordon (1977) to produce a total abstinence rate of 27% in 29 subjects.

The goal of this research was to reduce the client's smoking to zero, with a combination of self-management procedures: self-reinforcement, self-monitoring, use of environmental stimuli, contracting, engaging in alterantive behaviors, use of a "smoking spot", elimination of concomitant activity, and use of positive self-statements.

## Method

### Subject

The subject was a white, single, 18-year-old, female, college student. Assessment revealed that the subject had begun smoking at age 14. She started smoking because she wanted to be accepted by her friends. The first week of assessment revealed she smoked 96 cigarettes, with a situation-specific habit to her smoking. Most of her cigarettes were smoked during the weekend while playing pool and drinking beer. Present desires to stop smoking centered around health-related concerns.

### Procedure

On a daily basis, the client was to self-monitor her smoking according to the place and hour that she smoked before she lit the cigarette as suggested by Rozensky (1974). She also recorded the places she smoked such as the bedroom, the car and so on. Three weeks of baseline data were obtained in this manner. Next, she was asked to complete a paper and pencil measure of reinforcers adapted from Martin and Pear (1978). The length of treatment was determined using the formula devised by Nelson (1977). To reach this figure, he multiplied the number of years smoked by the current daily rate. This subject reported a four-year history of smoking and her average daily rate for the baseline was nine cigarettes. According to the formula, she received five days of treatment.

Treatment consisted of having the subject choose a date to quit smoking, and instructing her to tell her friends about her goal to stop smoking. Once a week, the subject met with a therapist to discuss data and her progress. A five day treatment contract consisting of the following variables

was compiled: 1) agreement to stop smoking on the fifth day of treatment; 2) continuation of the self-monitoring; and 3) establishment of a "smoking spot." The penalty clause of the contract was an agreement to give $1 of a pool of $7 to her least favorite chairty if she smoked outside of the designated "smoking spot." With the money left, she could buy a record album. When she had the urge to smoke, she was told to engage in alternative behaviors that were pleasant to her, such as listening to the stereo or writing, as proposed by Katz et al. (1977) and Nelson (1977). She was taught to use positive self-statements such as, "I have the will power to stop smoking," and "I can conquer this habit."

## Results

Using a combined treatment in a single-subject reversal design with a maintenance phase, the goal of reducing the subject's smoking behavior was realized. From a baseline high of 96 cigarettes per week, the client reduced her smoking rate to 12 during the 5 day intervention and total abstinence during the maintenance phase. During the intervention phase, the client smoked five cigarettes on day 25 and seven cigarettes on day 26 (see figure 1). These cigarettes were smoked in her "smoking spot" resulting in no use of the penalty clause of the contract. Self-report indicated that the subject did benefit from use of alternative behaviors and positive self-statements when feeling the urge to smoke. Follow-up contact after 17 and 20 months revealed the subject's continued abstinence from smoking.

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Insert Figure 1 about here

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## Discussion

These results concur with the success of other reported single-subject research with smokers (Nelson, 1977; Rozensky, 1974). However, the combined intervention of the "smoking spot" and contracted date to stop smoking were crucial to the success of this program. This research is also unique with the inclusion of a 17 and 20 month follow-up. The fact that the client had to smoke only in the bathroom reduced her rate because this made smoking less accessible. Since the client reported smoking while doing other activities such as playing pool and drinking beer, her agreement not to engage in concomitant activity further reduced the opportunities to smoke. Using a contract added to her desire to stop because she entered into an agreement to stop on a certain date. The success of this program strongly indicates the use of combined interventions in meeting a subject's needs in combating habits which are not necessarily maintained by anxiety components (see Paul & Bernstein, 1973). The uniqueness of this subject's smoking behavior being confined to the weekend created favorable conditions for a successful individualized program and supports future interventions in this direction.

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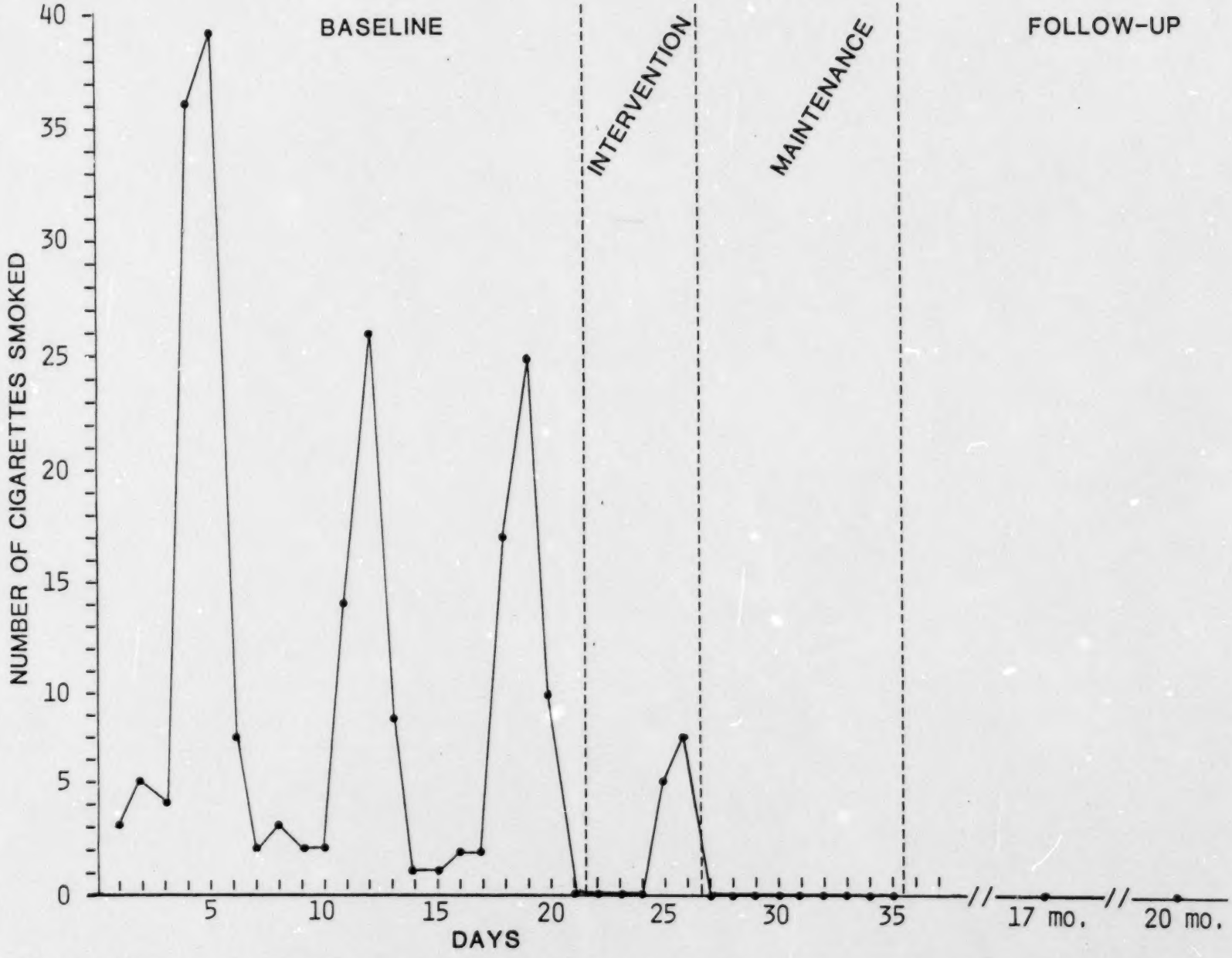


Fig. 1. Number of cigarettes smoked by subject during baseline, intervention, maintenance, and follow-up.